SUBCONTRACT MANAGEMENT PLAN

OVERVIEW

NLX understands that the scope and complexity of the task orders envisioned under the TSA II program depend as much on effective subcontractor source selection and management as it does on the control of efforts performed in-house. To that end, NLX has applied a proven set of subcontract management procedures to ensure TSA II mission success. Our overall subcontract management process strikes a balance between developing trusting relationships within an IPT environment while systematically verifying subcontract performance and risk. NLX started this process by fostering a partnership with both our TSA-II partner Litton TASC as well as our Preferred Suppliers. Embedded in this partnership is a sincere commitment from each participant to total customer satisfaction. After the pool of potential candidates was screened for technical expertise and proven performance, it was this commitment, above all else, that became the deciding factor in granting affiliation with the NLX team.

SUBCONTRACT MANAGEMENT PLAN

NLX's Subcontract Management Plan (SMP) involves the application of systematic set of subcontract procedures that result in: 1) the thoughtful planning of subcontract requirements; 2) subcontractor selection; 3) establishment of commitments, and 4) the tracking and reviewing the subcontractor performance and results. In this effort, NLX has empowered the TSA II IPT with the responsibility and authority to decide which subcontractors are relevant and beneficial to engage during the TSA II Program. Senior management is frequently briefed as to IPT's decisions and routinely statuses subcontractors' performance to assess and anticipate the need for timely intervention. The goals of NLX's subcontract management process are as follows: 1) Select qualified subsystem subcontractors; 2) Establish compatible processes; 3) Obtain Contractor/Subcontractor commitments; 4) Maintain ongoing communications; 5) Track subcontractor's actual results and performance against commitments, and 6) Successfully deliver acceptable end-item products.

For purposes of formal subcontracting, NLX draws a distinction between the need for commercially available material items and custom deliverable end-item products or subsystems. For our use, the term "Vendor" refers to the suppliers of commercially available material or non-developmental items. Material items are those normally purchased by specifying part numbers

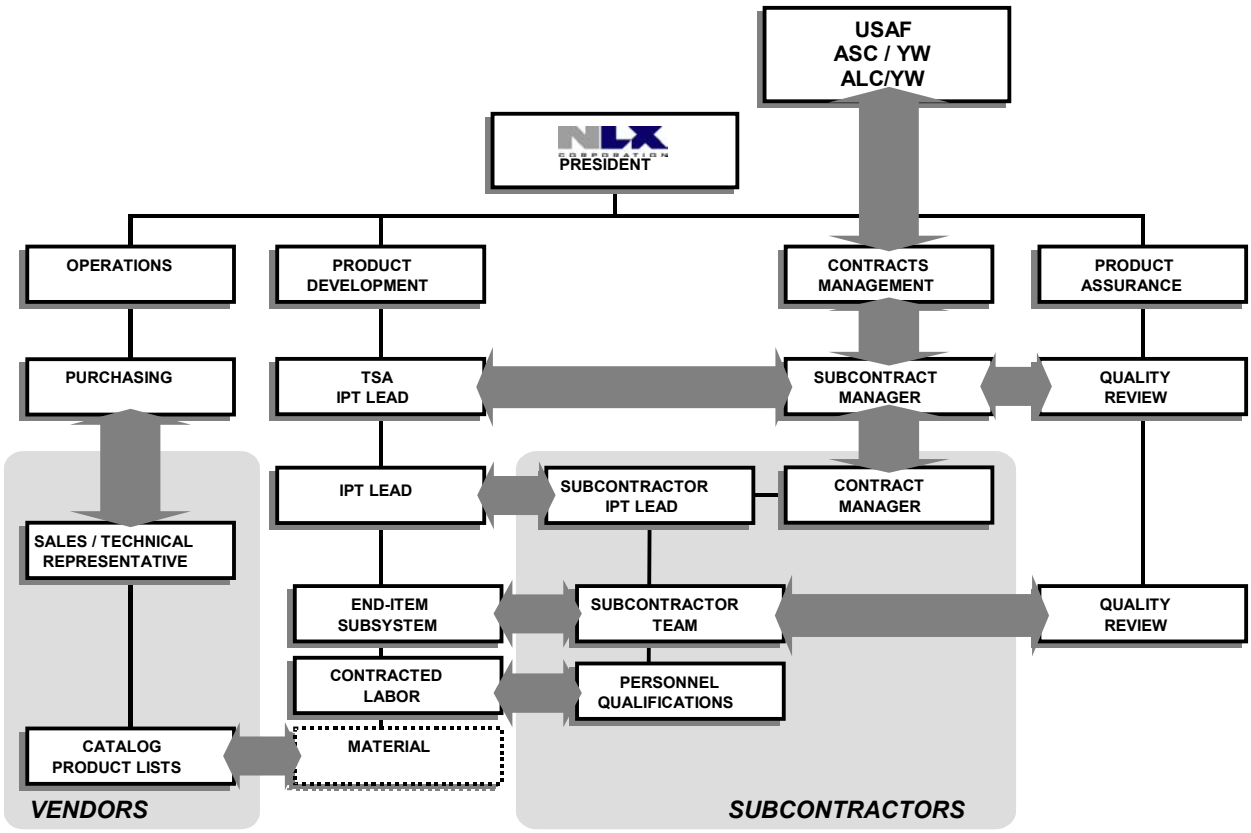
from product lists or catalogs. As depicted in Table 4-1 vendor items are ordinarily assigned a low-risk characteristic.

Table 4-1 For Management Purposes, NLX Distinguishes Between Subcontracting Efforts and Ordinary Vendor Purchases

SUBCONTRACTORS	VENDORS
➢ **End Item Subsystems**	➢ **Commercially available material items**
➢ **Requires SOW / Specifications**	➢ **Non-developmental items**
➢ **Not otherwise commercially available**	➢ **Catalog Items/Product Lists**
➢ **Medium to high performance risk**	➢ **Low performance risk**
➢ **Complex Terms & Conditions**	➢ **Routinely ordered**

Items that demand custom development to produce and end-item or subsystem configuration, for example, a radar image generator or electronic threat simulator are obtained from Specialty Suppliers under the terms of a Subcontract. In such cases, the subcontractor responds to a Statement of Work, a Technical Specification, and specific terms and conditions, performance standards, payment and delivery requirements. Subcontracts may also cover Time and Materials labor support that is ordinarily specified through personal qualifications that stipulate the level of skills, experience and capabilities required. As such, the business and technical relationship between NLX and its Subcontractor is elevated to a higher level of management, oversight and scrutiny. It is this particular subcontract relationship that is addressed within this plan.

Subcontracts Management Organization. NLX has structured its subcontract management organization to give corporate management direct awareness and oversight of the subcontracting process. All subcontracts are administered by NLX's Contracts Management department. As such, the Contracts Management department bears the responsibility and authority for the performance of all prime contracts as well as subcontracts. In this case, potential subcontracts issued by NLX under a TSA-II delivery order are managed within the same organization as NLX's prime TSA-II contract. The benefit of this organizational approach is that all customer requirements, including terms and conditions are properly evaluated and appropriately flowed down through corresponding subcontract terms and conditions. Our approach also provides our Clients with timely and accurate status of any on-going subcontracts. The primary lines of communications between ASC/YW, NLX and its subcontractors and vendors are depicted in Figure 4-1.



Subcontracts Manager: A dedicated Subcontract Manager is assigned to the TSA II Management IPT and serves as the focal point for all subcontracts matters within the team. The Subcontract Manager's authority is similar to that of the ASC/YW PCO. The Subcontract Manager is the single point-of-contact (POC) for his/her counterpart within the Subcontractor's organization. All contractual direction to the subcontractor must be communicated through this interface. NLX's Subcontract Manager is empowered to negotiate on behalf of the company and commit the Corporation to formal terms and conditions.

The Subcontract Manager follows a written organizational policy for managing the subcontracts. This policy specifies that: 1) Documented standards and procedures are used in selecting subcontractors and managing the corresponding subcontracts; 2) Contractual agreements form the basis for managing the subcontract; and 3) Changes to the subcontract are made with the involvement and agreement of both the prime contractor and the subcontractor. The Subcontract Manager's duties include: contract change management, cost & schedule reporting, on-time

quality performance and reporting, compliance with the Federal Acquisition Regulations, company policy and program requirement flow downs.

Subcontract Requirements. Internally, a subcontracting requirement is initiated by the issuance of a "Purchase Request" by a product development IPT. Each request is evaluated to determine if the work should be performed in-house, obtained as COTS from a recognized vendor, or purchased through a subcontracting mechanism. Figure 4-2 depicts the process flow by which a "make vs. buy" decision is determined. The initial assessment activities including surveys and trade studies are focused on gathering a technical understanding of the work required to produce the required end-item performance.

Once an initial assessment is completed and the determination is made to solicit proposals from team members or other corporations, a Purchase Request is forwarded to the Subcontracts Manager. The Purchase Request contains a non-technical description of the requested end-item products, a SOW, and detailed specifications and/or drawings.

Collectively, the Subcontracts Manager reviews/involves specific considerations, including : 1)

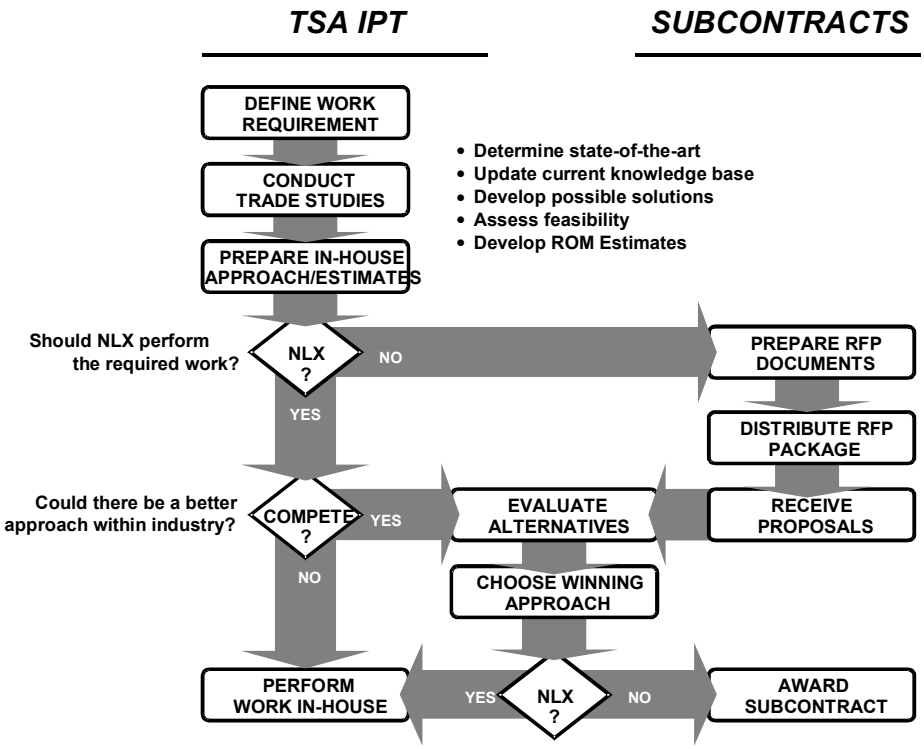


Figure 4-2 NLX's "Make Vs Buy" Process is Designed to Select Innovative Solutions for TSA II Requirements

scope of the overall job in terms of facilities, manpower and costs; 2) kinds of skills and facilities required for performance; 3) degree of quality, whether tolerances specified are exceptionally loose or tight; 4) types of materials (special or standard involved); 5) tooling requirements; 6) special packaging and shipping requirements and 7) requirements for drawings. The Subcontract Manager is tasked with identifying any inaccuracies, ambiguities or inconsistencies in the procurement description. Unless the urgency of a procurement dictates otherwise, the Subcontract Manager determines the capability of prospective subcontractors prior to a formal solicitation. Typically, the initiating IPT submits a list of qualified potential bidders for each subcontracting requirement. However, it is also customary to prepare and distribute technical questionnaires and Request for Information (RFI) to the appropriate industry sectors.

The number of sources on the final bidder's list depends upon the specific circumstances; however, the objective is to obtain at least three (3) responsive bids. Prior to consideration on the final bidder's list, the Subcontract Manager fully evaluates each potential source to ensure qualifications and to assess potential performance risks. When appropriate, new or unproven subcontractors solicited by the Subcontract Manager are screened through background checks, reference verifications, and site surveys, when appropriate.

In evaluating potential sources, the Subcontracts Manager must consider the following factors: 1) management ability and integrity, 2) financial strength, 3) competitive pricing policy, 4) technical capability, 5) internal Processes & Procedures, 6) record of past performance, 7) facilities and equipment, 8) Quality Assurance programs, 9) history of the company, 10) security, 11) labor relations, 12) geographic location, 13) services available, 14) experience in the field, 15) compliance with Government regulations, and 16) warranty policy.

NLX's general policy is to conduct a competition for every procurement for which it is practical to do so. However, competition may be restricted by the nature and complexity of the material being requested. Often only one source, or a limited number of sources are qualified to meet the requirements of a particular request. In cases that involve a noncompetitive procurement, the Subcontract Manager determines and provides rationale to fully justify the limitation. At procurement planning meetings, the Subcontract Manager presses for early initiation of the procurement request to allow enough time to solicit multiple sources. A focused effort is made to mitigate or eliminate factors that may lead to semi- or non-competitive procurements.

The formal subcontractor selection process is based on responses to the RFP document. The RFP typically includes: 1) Drawings, Specifications, Performance criteria; 2) Statement of Work: 2) Quality requirements; 3) Configuration Management requirements; 4) Maintainability/Reliability requirements; 5) Acceptance criteria; 6) Reporting requirements; 7) Incentive arrangements; 8) Special warranty clauses; 9) Terms and conditions 10) Key Personnel requirements, and 11) Schedules. In selected cases, Subcontract Manager may consider it desirable to conduct a pre-solicitation conference to provide technical briefings and to discuss the proposed procurement with prospective subcontractors.

Subcontractor Selection. Subcontractors are selected based on the significance of their contribution to the task order and their ability to perform the work. Many factors contribute to the decision to subcontract a portion of the prime contractor's work. Subcontractors may be selected based on strategic business alliances, as well as technical considerations. As depicted in Table 4-2. NLX's overall selection criteria are purposely designed to provide tangible benefits to the USAF's TSA II program.

Table 4-2 NLX's Subcontractor Selection Criteria is Designed to Provide Tangible Benefits to the USAF ASC/YW

APPROACH	BENEFIT TO USAF
• Subcontractors must demonstrate understanding of overall TSA II mission as well as technical requirements	✓ All team members understand and can respond to TSPG cultures, processes and objectives
• Subcontractors must provide a product that is technically superior	✓ Delivery of highest quality products reduces risk and Life Cycle costs
• Ethical and corporate stability is verified	✓ Assurance that NLX Team performs to highest standards

During the subcontractor selection process, the optimal supplier is determined on the basis of : 1) technical approach; 2) standard practices & procedures; 3) organization & management capability; 4) schedule; 5) quality control; 6) price; 7) product support & logistics, and 8) special considerations. The percentage weight given to each criterion category is determined and assigned during subcontract planning, but it is not made known to the bidders. Experts from the Product IPT's functional disciplines assist the Subcontracts Manager in evaluating the proposals. The importance of careful selection of sources to be included in a bidder's list cannot be overemphasized since the success of any procurement is almost entirely dependent on the actions of the

subcontractors. A well-chosen list of bidders yields responsive proposals, competitive prices and ultimately effective performance.

The nature, complexity and size of the procurement largely determines the review process and techniques employed to appraise a subcontractor's capability. In some cases, a survey team composed of the cognizant IPT experts is formed to visit prospective subcontractors.

During the in-plant surveys, additional information gathered on the bidder's technical, management and financial capability to perform the work.

Each subcontractor proposal is subjected to a cost/price realism analysis. To determine an acceptable competitive range, the proposals are compared individually and with respect to a locally developed "should-cost" analysis. If reasonableness cannot be established by price comparisons, the Subcontract Manager will perform a cost breakdown analysis of each proposal. This technique evaluates the specific cost elements of the proposal to determine their reasonableness in relation to the work to be performed. In areas of advanced technology where technical competency may be the overriding consideration in selecting a subcontractor, an analysis and comparison of the cost estimates may provide the subcontract manager with greater insight into the prospective offeror's grasp of the scope and technical nature of the required work.

Subcontract Definitization and Award. Once the subcontract selection process is completed, an award announcement is made and a post-award conference is conducted with the winning bidder. This review is vital to acquire an understanding of the subcontract agreements and obtain performance commitments. During this conference an agreement covering the technical and non-technical requirements is established and is used as the basis for managing the subcontract. The work assigned to the subcontractor and the plans to perform the work are fully documented in the subcontracting package. The basic elements of the subcontracts package are listed in Table 4- 3.

Table 4- 3 NLX Subcontract Document Organization

Section	Description
A	Subcontract Agreement
B	Supplies/Services & Prices/Costs
C	Description/Specifications/Work Statement
D	Buyer Furnished Items
E	Inspection and Acceptance
F	Deliveries or Performance
G	Subcontract Administrative Data
H	Special Contract Requirements
I	Contract Clauses
J	List of Attachments
K	Representations, Certifications

Subcontract Execution. During the subcontract execution phase, the Subcontract Manager measures and monitors progress and conformance of the subcontractor's progress. The planning, tracking and oversight activities for the subcontracted work are performed by the Subcontract Manager. The prime contractor ensures that these planning, tracking and oversight activities are performed appropriately and that the end-item products delivered by the subcontractor satisfy their acceptance criteria.

NLX works closely with the subcontractor to manage their products and process interfaces. Figure 4-3 depicts the specific lines of communications used during subcontract execution. Communication between NLX and the subcontractor occurs at four (4) different levels.

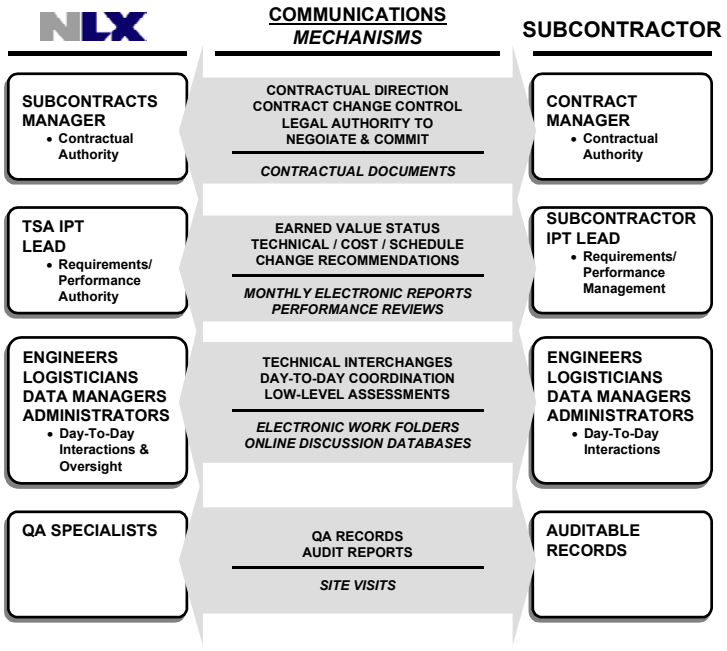


Figure 4-3 Communications on Several Levels Promotes Effective Coordination Between NLX and its Subcontractors

The first level is that of Subcontract Manager to Contract Manager. All formal contractual reaction occurs through this channel and must be evidenced by fully executed contractual documents. The second line of communication occurs between NLX's TSA II Task Order IPT Leads and their counterparts. All subcontract performance status reporting is periodically performed through this channel. This status reporting includes: earned value progress, schedule and cost performance, technical performance, risk assessments, special issues and recommended contractual changes. The third level of communication allows day-to-day interactions among the constituent team members. These members usually include the cognizant engineers, logisticians, data managers and administrators. The final level is a conduit to perform routine quality assurance audits and assign corrective actions.

Electronic Data Management Systems

To facilitate on-going communications NLX has developed an Electronic Data Management System (EDMS) (Figure 4-4) that is designed specifically to capture and control information related to the TSA II Program. This system is designed to be responsive to all IPT members by providing on-line, real-time information relative to: 1) design and development of products; 2) product documentation; 3) product support; 4) IMP status; 5) IMS status; 6) TPM updates; 7)

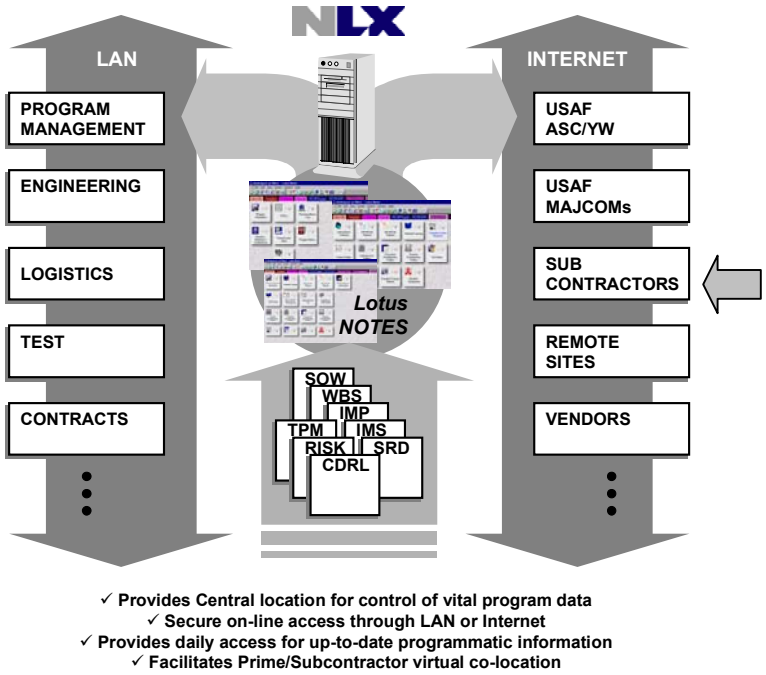


Figure 4-4 NLX's EDMS Allows Continuous Access to Program Progress and Status

Risk mitigation progress; 8) design review presentations, action items and minutes; 9) delivered CDRL items; and 10) contractual correspondence. All NLX subcontractors are encouraged access to the TSA II EDMS through the issuance of individual internet security passwords.

The system's primary purpose is to ensure required IMP accomplishments and criteria are met or set action plans are in place to achieve closure prior to scheduled events. Risk items, TPMs as well as design and support issue discussions are updated as they occur. Ultimately, this capability provides unprecedented insight into program progress, thereby identifying potential subcontracting problems prior to becoming trouble areas.

Subcontractor Performance Reviews

Throughout the subcontract execution process, multiple performance reviews are held at predetermined intervals. The performance reviews are a means of evaluating the managerial and engineering activities. They are in-depth evaluations of the product development for compliance with standards, completeness and accuracy of implementation. As Chairperson, the IPT Lead ensures that the requirements are being properly addressed, and that corporate objectives for quality, usability and maintainability are adequately satisfied. Generally, performance reviews coincide with the conclusion of major subcontract accomplishment or milestones, and they can therefore be used as a vehicle for work payments, if corrective action is not required.

Subcontractor Cost & Schedule Management

All subcontractor tasks are fully intertwined into the NLX integrated master plan and master schedule. Milestones and metrics are established and monitored to ensure quality, schedule and technical success. The TSA II Program Manager, and others, review and evaluate status reports and metrics from the subcontractor to identify variances and assess overall performance. The key management elements that are critical to achieving effective subcontract cost & schedule management include: 1) detailed up-front planning; 2) continuous system evaluation and process improvements; 3) integrated involvement by all required specialists and team partners, including the USAF; 4) disciplined tracking and reporting of technical progress and 5) continuous and open communication within the team relationship.

To implement these critical elements, NLX has perfected a battery of management tools to facilitate coordination and communication among all team members, including the USAF. The basic integrated toolset, derived from the WBS, SOW and Specification, is comprised of a de

tailed Integrated Master Plan (IMP), Integrated Master Schedule (IMS), Integrated Risk Management Plan (IRMP) and Monthly Cost Status Reports. In addition, electronic subsystem work folders discussion databases are created and maintained online within NLX's EDMS, and these work folders are accessible by NLX's team members over the Internet.

Integrated Master Plan. The IMP is the foundational management tool that links the subcontractor's management systems into NLX's integrated management framework. The IMP is an event-oriented plan defining a series of major sequential decision points or "events" in the course of the TSA II Program. At each event, the subcontractor and NLX assess the programs' progress by evaluating the completion of a number of specific "accomplishments" that must be complete prior to moving on to the next event. Each accomplishment includes a series of "exit criteria" that provides objective evidence that the accomplishment is completed. The events, accomplishments, and criteria are structured to quickly evaluate the technical maturity, program progress and risk mitigation on all aspects of the program. Each activity recorded in the IMP was developed by subcontractors responsible for its accomplishment. Each of the individual tasks were coordinated, refined and re-coordinated with the other IPT members' "individual" tasks. The final "baselined" product represents an IMP for the complete TSA II Program.

Integrated Master Schedule. The IMS augments the IMP by expanding each Event/ Accomplishment/ Criteria to include detailed tasks and sub-tasks. These tasks are logically networked with respect to their dependencies to other tasks, thereby forming the basis of the program schedule. In all cases, tasks and sub-tasks are structured to reflect the actual sequence in which they are expected to be performed, and are grouped by events or milestones. The IMS is directly tied to the IMP in a common database and cross-referenced to the WBS.

Integrated Risk Management Plan. The IRMP provides timely and comprehensive visibility into the risk areas associated with the program. The plan is structured around the principles taught by the Defense Systems Management College (DSMC). The plan outlines the responsibilities for managing risk, the program approach for abating and controlling risk, and the risk templates used for day-to-day tracking. The IRMP is also cross-referenced to the IMP and the IMS to provide evidence of risk closure or assess any potential schedule impacts.

Risk Management. The assessment and management of subcontractor performance risk is integrated with NLX's overall risk management process which is detailed in paragraph 3.0 under the Factor 1.0 Tab of this volume.

Cost Status Reports. The Cost Status Reports, submitted monthly, provide a variance comparison of budgeted subcontracted costs to actual expenditures. These variance assessments are developed for the current period, calendar year-to-date and subcontract to date. Information that accompanies the variance assessments include: reason for variance, impact to downstream cost and schedule estimates and a prognosis of existing backlog to complete the contracted tasks. This information, coupled with the schedule status inputs, rolls up within NLX's Earned Value Management System (EVMS) to determine the overall program status.

Technical Performance Measures. TPMs are an established set of discrete, measurable, critical performance criteria necessary for effective control of the device compliance and performance. TPMs are an integral part of the subcontract process and provide the IPT with visibility into the actual technical performance of the subcontracted subsystems in relation to the planned or predicted values. This process promotes early detection of performance issues and allows time to accommodate alternate solutions. The subcontractor's TPMs are reviewed monthly and also during the periodic performance reviews.

Subcontract Close-Out

Close-out of subcontracts is required to ensure that all contractual obligations have been completed by the contracting parties and to provide for complete supporting documentation. Subcontracts in the following categories are formally closed-out for agreements involving: 1) cost type contracts, 2) patent rights or royalties, 3) terminations, 4) accountability for buyer-furnished equipment, 5) classified documentation and/or hardware and 6) other special circumstances.

Where appropriate, the final payment to the subcontractor should be conditioned upon the satisfactory completion of: 1) shipment of all deliverable items, 2) disposition of buyer-furnished material or equipment, 3) submittal of Government-required reports or forms or 4) disposition of any classified material. Subcontracts are closed-out by the assigned Subcontracts Manager at the earliest opportunity. Lastly, using a Close-out checklist as a guide, the Subcontracts Manager reviews the status of all the requisite delivery requirements for final close-out of the subcontract.

QUALITY ASSURANCE

NLX's independent QA function is tasked to establish subcontract/vendor quality requirements as derived from contract specifications and ISO-9001 internal standards, and for the surveillance of supplier performance and compliance. Supplier quality requirements are detailed in the purchase order and/or subcontract document where QA approval and sign-off is required.

Compliance review of common materials, and COTS purchases is normally accomplished by the Incoming Inspection Process where product deliveries are evaluated for completeness, compliance with the purchase or specification requirements, and quality. Inspection of functional components such as an instrument or computer may be issued to manufacturing or IPT personnel to fully verify functional performance. Material failing to meet all purchasing requirements and standards are recorded on a Non-Conforming Material Report (NCMR) and returned to the vendor for correction and redisposition.

Subcontractors performing new development or significant adaptation of an existing product are subject to quality surveillance and periodic audit inspections starting at subcontract award and completing with final delivery, validation, and selloff. Incremental audits inspect the entire scope of the product relative to its current design phase and state of accomplishment to ensure performance, cost and schedule adherence. Audit reports are filed with the Subcontract Manager and Program Manager. Each report provides a statement of findings and highlights problem areas and trends, recommendations for corrective actions, and correction suspense dates. Repeat audits and inspections may be scheduled when significant deficiencies are discovered or when corrective actions are not timely.

Acceptance of major assemblies and subsystems are subject to a formal Physical Configuration Audit (PCA), and where appropriate, a Functional Configuration Audit (FCA) based on an approved and validated Test Procedure. QA is responsible to review and verify quality and conformance of all aspects of the delivered product including hardware, software, design, and technical support documentation. QA may be assisted by the appropriate IPT members in completing aspects of the FCA or PCA.

PROPOSED SUBCONTRACTORS

NLX has assembled an IPT that offers a superior blend of capabilities and experience to meet every facet of USAF training systems program requirements. Refer to Table 4-4. Our IPT's expertise, innovative qualities and demonstrated history of program success are unrivaled and guarantees full compliance with the requirements and long term goals of the TSA II program. This guarantee is met by capitalizing on the mature management processes, technical expertise and extensive development capacity that exists within our organization. The text of each corporate agreement may be found in Attachment 2 of this volume.

Table 4-4 Leading Technology Companies Have Pledged To Support NLX on the TSA-II Program

Company	Status	TSA-II Contribution
NLX	P	Prime Contractor
Litton TASC	S	Subcontractor - DMT/HLA, Modeling & Simulation
NLX Senior Advisors/Consultants	A	Program planning and execution for ATS requirements
Advanced Simulation Technology, Inc.	V	DIS/HLA compliant digital communications & audio
Aera, Inc.	V	Courseware, Digital logistics data
Ball Aerospace & Technologies Corp.	V	Studies, technology analysis & development
Camber Corporation	V	Radar, IR and sensor simulations
Diamond Visionics Corporation (DVC)	V	Image generators, database, and display systems
Dynamics Research Corporation (DRC)	V	Studies & analysis
Evans & Sutherland (E&S)	V	COTS image generators, database, displays
Excalibur Simulation & Training	V	Electronic Combat Training
Global Information Systems Tech (GIST)	V	Courseware, TMS
JWK International	V	TSRA
Logicon Advanced Technology	V	TMS
Manufacturing Engineering Systems, Inc. (MES)	V	Sensor simulations, mechanical design
McDonnell Douglas (Boeing)	V	Platform data, Systems Engineering, DMT expertise
MultiGen Paradigm Incorporated (MPI)	V	Database development tools, database m1odellng
SEOS Displays LTD	V	Visual display systems and structures
StarMedia	V	CBT, Courseware, Distance Learning
Virtual Technology Inc	V	Advanced networking technologies, HLA/RTI

P – Prime Contractor S – Teammate-Subcontractor A – Senior Advisor/Consultant V - Vendor